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the combustion process owing to the non-uniformity of the supplied fuel.

EP-372,353 by the same Applicant discloses a stabilized emulsion of a fuel, particularly a fuel for Diesel engines, and water, with the addition of a product which acts as a lubricant and antifreeze, for example sorbitol monoleate. The stabilized emulsions of fuel are prepared by using a turbine-effect emulsifier such as the one disclosed in EP-124,061 in the name of this same Applicant.

Applicant has noted that in some cases, particularly in case of use of low-density fuels, the preparation of the fuels as disclosed in EP-124,061 and EP-372,353 entails a relatively high energy expenditure and a reduction in the productivity of the system, if one seeks high productivity and stability.

A method with improved efficiency for forming the emulsion of a fuel is disclosed in co-pending EPA No. 00121331.3 and corresponding co-pending US Application Ser. No. 09/684,649 filed on October 10, 2000 by the same Applicant, included herein by reference. This method requires the use of an apparatus having a particular geometry.

The above applications disclose an apparatus and a method for forming stabilized atomized microemulsions from different liquids which are normally immiscible; the apparatus comprises a primary chamber and a sequence of at least two cavitation chambers arranged in succession, means for feeding primary and secondary fluids into the primary chamber, and means for the exit of the formed microemulsion from the last cavitation chamber, the primary chamber and the cavitation chambers being fluid-connected to each other by way of fluid passage means which are adapted to produce a velocity of the fluids, during passage through the passage means, which gradually increases from the primary chamber toward the last cavitation chamber. The method according to the above applications comprises the stage of premixing the primary fluid with the secondary fluid, followed by the passage of the premix of fluids through a succession of steps of flow at a higher velocity alternated with steps of flow at a lower

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Water (Karl Fisher method) %	≤ 0.5
Ash % by weight	≤ 0.2
HLB	12.8

Moreover, a preferable emulsive agent is a C_{16} C_{18} cetyl stearyl alcohol ethoxylate with 11 moles of ethylene oxide of the non-ionic type, which can be combined with anionic and cationic surfactants, for example having the following characteristics:

Cetyl stearyl alcohol (fatty alcohol)	C_{16} C_{18}-11 moles of ethylene oxide
pH sol. 3%	5-7
NaCl 10% turbidity point	58-62°C
Hydroxyl number	69-75 mg KOH/g
Water content	≤ 1%
Melting point	37.5-39.5°C
Acidity number	≤ 1
Relative density at 70°C	0.962-0.965 g/cm^3
Solidification point	≤ 35°C
Flash point	≤ 250°C
Solubility	clear solution in water at 40°C
	partial solution in water at 20°C
Appearance	solid
Color	whitish
Odor	almost non-existent (odorless)

Also these "emulsive agents" can be introduced in the same ratios as those provided for nonylphenol ethoxylate, i.e., from 5 to 20 parts in 1000 parts of intact Diesel fuel.

The presence of the emulsive agent $C_{16}C_{18}$-11 moles of ethylene oxide, when the microemulsion is processed in particular through the EMDT5 system provided with multiple reverse-flow coaxial turbines according to EPA No. 001:21331.3 and to the corresponding co-pending US Application Ser. No. 09/684,649 filed on October 10, 2000

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especially in hot climates (>27°C).

The fuel according to the present invention can be obtained by mixing the components, i.e., conventional base fuel, preferably Diesel fuel, emulsifier, emulsive agent and water, with minimal agitation. The formation of the microemulsion is practically instantaneous and is revealed by an instantaneous change of color of the mixture of components, which becomes white. The instantaneous behavior is also an essential visual parameter for determining the result.

The microemulsion is formed even as easily as by placing the components in a container, even a bucket, and by performing minimal agitation. The microemulsion is characterized by microcells having dimensions substantially smaller than 0.15 μm.

The resulting microemulsion is stable even after centrifugation at over 35,000 m/s^2.

The preparation of the fuel according to the invention, which is termed GECAME-2, occurs substantially spontaneously or in any case with minimal agitation of the components, without the need for devices such as the turbine-effect emulsifier. However, for the sake of high productivity in a particular short time, the fuel according to the invention can be formed by using an apparatus such as the one disclosed in co-pending EPA No. 00121331.3 and corresponding co-pending US Application Ser. No. 09/684,649 filed on October 10, 2000 by the same Applicant. The use of such a device is suggested merely owing to the fact that this system allow homogenization of large volumes substantially instantaneously with very low industrial costs.

The disclosures in Italian Patent Application No. MI99A002393 from which this application claims priority are incorporated herein by reference.

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